

# AMERICAN BEE JOURNAL.

EDITED AND PUBLISHED BY SAMUEL WAGNER, WASHINGTON, D. C.

AT TWO DOLLARS PER ANNUM, PAYABLE IN ADVANCE.

VOL. IV.

FEBRUARY, 1869.

No. 8.

[Communicated for the American Bee Journal.]

## Foulbrood, A MICROSCOPICAL INVESTIGATION INTO ITS NATURE AND ORIGIN.

I have much pleasure in laying before the readers of the BEE JOURNAL the following translation of a very interesting paper which appeared in the last number of the *Bienenszeitung*, and shall be glad if Mr. Quinby and other observers who are interested in the subject will favor us with their opinions upon the theory which is therein promulgated. Its author, Dr. Preuss, of Dirschau, is a physician of great eminence and wide-spread reputation, "Sanitätsrath," or Sanitary Counsellor, being an honorary title conferred by the Prussian Government only upon distinguished members of the medical profession. Whatever we may think of the fungoid theory which he advances, it must be conceded that he is tolerably correct in his treatment of the disease, and that we have to thank him for a very able and laborious effort to dispel the mystery which has so long enshrouded its origin, as well as the mode in which, under certain circumstances, it becomes so rapidly developed and propagated.

T. W. WOODBURY,  
("A Devonshire Bee-keeper.")

MOUNT RADFORD, Exeter, Eng., Oct. 21, 1868.

## THE EXISTENCE OF VIRULENT FOULBROOD DEPENDENT UPON A MICROSCOPIC FUNGUS, CRYPTOCOCCUS ALVEARIS.—IT CAN BE PRE- VENTED AND CURED.

Although I have seen bee-keeping carried on from my earliest childhood, and have myself pursued it during seventeen years, in Dzierzon and straw hives, with German, Italian, and Egyptian bees, and have taken occasion to examine numerous apiaries in the valley of the Vistula from Dantzic to Plock, in Poland, it was not until 1866 that I anywhere met with foulbrood.

Bee-keeping in the Vistula valley is generally carried on in straw hives, and is very prosperous owing to the rich pasturage furnished first by the extensive fields of rape-seed, then by the

white clover, and in the autumn by the wild mustard. In the neighborhood of Dirschau and Dantzic there are, indeed, numerous apiaries of Dzierzon hives, and at Gütland, one mile from Dirschau, my friend Wannow keeps bees entirely in hives of this description.

Two years ago, whilst he still possessed a magnificent apiary of seventy hives, mostly in bee-houses, he called my attention to the fact that foulbrood had made its appearance among them. We did not at that time lay any particular stress upon it, and this is an error against which we can scarcely warn bee-keepers sufficiently. When I visited him again shortly afterwards, I was astonished at finding this beautiful apiary dwindled to one-half its former number, and still continuing diseased. I immediately purposed to devote myself to the investigation of this horrible malady, especially to the microscopical examination of the foulbroody substance; and I here communicate the result.

The statement of Von Molitor-Mühlfeld, of Mannheim, that a saw-fly is the cause of this disease, we have not found confirmed in a single instance, the minute perforations which sometimes exist in the cell-covers being made by the bees. Never have we, either with magnifier or microscope, found in the cells the eggs or maggots of saw-flies; never have we found in the hive even the saw-flies themselves. Neither can we indorse the theory of Dr. Assmuss, that the disease is produced by the larva of *Phora incrassata*.

Foulbrood, as is well known, has a viscous, gelatinous, and yeast-like appearance, and an unpleasant odor. Foulbroody cells may be recognised by their sunken covers.

In order to be able to set about the microscopical investigation of this disease, it is necessary to possess a microscope which has a magnifying power of at least 200 to 400 diameters. Mine is an excellent instrument by Brunner, of Paris, and my observations have been made with a magnifying power of 600 diameters. It possesses also a micrometer which will measure to the ten-thousandth part of a millimetre, or the twenty-thousandth part of a line.

It is also essential that we operate very neatly

and with as little contamination as possible. The investigation is best conducted when the blue sky sheds its light on the field of the instrument—not the direct rays of the sun or a reflected light from a building or such like. A retired room that is unshaken by passing vehicles, and a firmly fixed table are also required. The instrument itself should be levelled in a horizontal plane.

A great many observers as well as beginners commit the mistake of placing too great a body of matter on the glass slide, in which case nothing can be seen but a chaotic mass. It was against this error that my respected and highly honored preceptor, Ehrenberg, of Berlin, warned his scholars the most.

When the microscope is properly adjusted, we dip the end of a clean and very slight rod, either of glass or wood, into a foulbroody cell, and by this means deposit a particle of the matter about the size of a grain of sand (a portion even of the size of a millet grain would be too large) upon a very perfect glass slide scrupulously cleaned by means of wash-leather. We then dip another rod in freshly-distilled water, or in fresh rain water caught in a clean porcelain vessel (if the water be not fresh it becomes impregnated with organic matter, whilst spring water would deposit crystals and thus vitiate the operation) and by means of this perfectly clean rod dipped in absolutely pure water, we deposit a drop of the size of a millet grain, and no more, on the particle of foulbrood of the size of a grain of sand, which by this means diffuses itself a little in the water. The whole being covered with a thin glass about the thickness of a poppy-leaf, we have a preparation by means of which long and careful studies can be made. If we place it under the microscope we see a thousand dust-like bodies which are known to the micrologist as fungi, and which belong to the species *Cryptococcus* (Kützing). These are best seen at the edges of the mass where they are scattered singly; but if the observer has neglected the precautions before indicated he will not be able to detect the fungi singly, nor will he indeed see anything of which he can undertake the examination. If we find different sized bodies, the larger are fatty particles, the remains of the bee-chrysalis, and those which are smallest of all and dust-like are the fungi.

The foulbrood fungus, which I have named *Cryptococcus alvearis*, belongs to the smallest of fungoid forms. It is round and dust-shaped, and has a diameter of 1.500th millimetre, or 1.1095th line. Consequently 1095 can lie side by side within a Rhenish line, but within a square line 1095 x 1095—that is, 1,199,825, or in round numbers, 1,200,000. The cubic line, according to this would contain 1,440,000,000,000 fungi; and a cubic inch of foulbrood, which consists of 1728 lines, would contain 2,488,320,000,000,000. If we reckon further that a cubic inch of comb contains 50 cells the contents of each cell would be 49,766,400,000,000—in round numbers, fifty billions, or deducting one-fifth for wax, forty billions of fungi.

It is only this enormous capability of increase which renders foulbrood so dangerous, as is, in-

deed, the case with the cholera, typhus, and small-pox fungi, &c.

Foulbrood is no more a poison than is any strong rank-growing weed; it merely supplants that which otherwise would live and thrive. It is closely allied to the fermentive fungus, *Cryptococcus fermentum*, which by its rapid increase in fluids capable of fermentation, transmutes them, and, after it has consumed all the elements which are capable of serving for its reproduction, precipitates itself in the form of lees. Beer and wine lees are in like manner a conglomeration of microscopic fungi.

The actual nature of foulbrood being clearly defined, everything else follows of itself. The extraordinary facility with which it may be communicated must be indubitable; so long as it lies jelly-like and covered in the cells it is perhaps the least dangerous; but when it rests dry, and like a black crust on the edges of the cells, or falling down within the hive is scattered abroad like dust, then billions of sporules are sown broadcast. They adhere to the feet of the bees, enter the cells filled with young brood, become transferred to other hives, through resting on flowers, &c., and thus the disease may be spread in a thousandfold manner.

It is well known that it is not the larva, but the sealed chrysalis that first dies of foulbrood and is then consumed by it. The fungus, however, first attaches itself to the larva, but in trifling quantity, for some thousand sporules cannot injure it; so pass the six days of its larval life. It has within itself the germ of death, but yet it lives. When in the nymphoid state it is killed by the fungus multiplying prodigiously in geometrical progression, which also continues to increase after the death and at the expense of the chrysalis, which it ultimately changes entirely into itself.

I should define the distinction made by Dzierson, between non-contagious and virulent foulbrood as consisting in this—that non-contagious foulbrood means the death of the larva from other causes, and virulent foulbrood the death of the larva from foulbrood fungus.

With respect to the origin of foulbrood, independently of infection, we have seen above that the foulbrood and fermentive fungi are of the same species, and it is also known that fungi, especially the microscopic kinds, change and transform one into the other, according to the different substances upon which they alight.

It is in this way highly probable that the fermentive fungus *Cryptococcus fermentum*, may when it comes in contact with, or when as food it enters the body of the bee larva, change itself, under peculiar conditions of temperature and moisture, into *Cryptococcus alvearis*, or foulbrood fungus.

All practical bee-keepers complain of feeding with fermenting honey as the principal cause of foulbrood, and fermenting honey arises in the first instance if, when the honey is taken possession of, the sealed or open combs containing brood are not carefully separated from the honeycombs, in which case the honey becomes mingled with albumen, and is useless for feeding. We cannot, therefore, be too careful in using honey for bee-food.

Mr. Wannow, of Gütland, a very assiduous and intelligent apiarian, always asserted, long before I begun my microscopical investigations, his conviction that foulbrood had arisen with him through giving his bees meal as food, or that it had at any rate been greatly increased by it. Although no other similar observation has reached me, I yet esteem this experience of a thoroughly practical man as well worth notice. Meal is an exceedingly favorable soil for the propagation of this fermentive fungus, as is proved by the abundant fermentation which follows the addition of yeast to dough. It may, therefore, be advisable, at least in hives which are already deceased, to eschew the use of meal as food.

As the fermentive fungus is very much diffused throughout nature, and as countless multitudes of its sporules float in the atmosphere, so they without being greatly assisted in their increase by fermenting liquors, when they have the opportunity of establishing themselves on a soil which agrees with them, contrive to carry out their propensity for multiplication. A particularly favorable soil is found in dead and mouldering larvæ; and for this reason, if brood which has died from cold or other causes be permitted to remain in the hive, it may occasion virulent foulbrood without feeding with deleterious honey or such like.

The removal of a hive, by which too many bees are lost, and those remaining are unable to foster the brood, may promote foulbrood. The multiplication of stocks by artificial means, by which, when the proportion of the bees to the brood is too small, the latter may readily be chilled to death, is more favorable to the outbreak of foulbrood than natural swarming. I have on a former occasion advised for the prevention of chill, the warming of artificial swarms by means of corked bottles filled with hot water—a practice which I have found very beneficial. We are, therefore, very careful that dead brood, especially such as is sealed over, should be removed as soon as possible from the hive and buried deep under ground, since the fungus, which may, perhaps be already on it, readily grows luxuriantly in the open air. We should never throw out dead bees near an apiary, but bury them, as the dead bodies of bees are also soil in which fungi will thrive. As a corpse, if permitted to lie unburied, might infect a whole town and engender within it a fatal epidemic disease, so may a few putrefying maggots poison a whole apiary.

Should the disease have already broken out, it may be asked, What farther is to be done? In the first place, let us not take it easily, but view it with the same serious attention as is wont to be bestowed upon glanders among horses. That we must avoid all the before-mentioned food, either fermenting or capable of fermentation, among which meal should be reckoned, is, of course, self-evident. Medicaments for the extirpation of foulbrood there are none. It is, as with the diseases of men, important to know this, lest time should be wasted in useless quackery. But as there are no medicaments for the disease, the maxim of Hippocrates must needs be valuable:—*Quæ medicamenta non sa-*

*nant, ferrum sanat; quæ ferrum non sanat, ignis sanat.* We also pass quickly to the iron—i. e., we examine the hives diligently, and as soon as foulbrood appears in the apiary, cut out every comb in which are foulbroody cells. It this is of no avail, the court of third instance—the fire, comes in its turn. We do not spare our apiary, but remove each foulbroody comb, disdaining to take from it either honey or wax, with which we should reap billions of foulbrood fungi, but throw it into the fire, wherein the fungi are effectually disposed of, and hang the healthy combs in pure hives. We do not deem it necessary to burn the infected hives, but wash them inside and out with diluted sulphuric acid (one part acid to ten parts of water, by weight) and some time afterwards with boiling water, by which means the fungi are destroyed. If we prefer a self-acting process, we place the hives in an oven, and keep them there for some hours exposed to a temperature equal to that of boiling water; here the heat penetrates into all the crevices and pores, and effectually destroys the fungus. When, thirty-five years ago, I walked the hospital in Berlin as a young medical student, puerperal fever and hospital gangrene prevailed to fearful extent, and lying-in women and the wounded perished from ulceration, after enduring the most horrible sufferings. All remedies and precautions having proved futile, we emptied the different wards, keeping them for weeks with closed windows heated to a temperature of 40°, (123° Fahrenheit,) and when they were again tenanted by the sick it was found that the epidemic had vanished. Here, then, we may also presume that a fungus was destroyed by the heat.

The site of the apiary should be repeatedly moistened with diluted sulphuric acid, and the earth around it dug over. After all the hives are purified, we should, if possible, remove the apiary to a new position. The conveyance of the disease by the bees themselves is, perhaps, less dangerous if we only diligently examine their hives, and for this reason we only kill them when everything else fails. Their establishment in new, or at any rate clean hives, is best effected about the middle of June, because they are then able to build sufficient combs and store them with food for the winter. But all foulbroody colonies should be transferred as nearly as possible at the same time, lest the healthy stocks become contaminated by the diseased ones. For this reason also we examine all the combs weekly, and remove such as are infected, and in this way it is quite possible to conquer the disease.

As in medicine the most distinguished practitioners generally discovered the right mode of treatment before the actual nature of the disease was determined, so also Dzierson, Von Berlepsh, and others have already promulgated many of the above rules for the treatment of foulbrood, and have especially warned us against losing time in worthless quackeries, a warning which we cannot here repeat too forcibly. If, however, the instructions which we have given above be scrupulously and energetically followed out, no one need despair of curing the most virulent foulbrood.—DR. PREUSS, *Sanitätstath.*



[For the American Bee Journal]

**The Honey-Emptying Machine.**

Having received several requests for a description of my machine, I would like to describe it once for all in the JOURNAL.

First, let me say it is a difficult thing for me to describe; but I will try to make it all plain, and if I fail to do so I shall be pleased to answer any inquiries about it, if the necessary postage is remitted.

Provide a tin can 20 inches in diameter by 25 inches deep.

Bill of stock for the rack holding the combs—dimensions given in inches:

1.	Bottom board.....	12 $\frac{1}{2}$	x	10 $\frac{1}{2}$	x	1
2.	Two cleats.....	10	x		x	
3.	Three pieces.....	17	x		x	
4.	Four pieces.....	14	x		x	
5.	Two pieces.....	12	x		x	
6.	Two pieces.....	7	x		x	
7.	Four pieces.....	19	x	1	x	
8.	One piece.....	18	x		x	
9.	One piece.....	8	x		x	
10.	One piece.....	23	x		x	
11.	Two pieces.....	7 $\frac{1}{2}$	x	7 $\frac{1}{2}$	x	
12.	Shaft.....	36	x	15-16	x	
13.	Two pieces wire screen.....	19	x	14		
14.	Two pieces wire screen.....	8	x	7		
15.	Six strips.....	14	x			x

Use screws to put it together, then if any part needs replacing or adjusting it can easily be done; it also makes it much stronger, which is quite essential, as a heavy strain comes upon it when in operation.

Fasten the cleats (2) to the underside of the bottom board, one at each end; also the clamp (9) to the centre of the same side. This piece should have a hole through the centre, 15-16 inch in diameter, to correspond with a similar one through the centre of the board.

Next, fasten the four pieces (7) to the ends of the bottom board, one end flush with the bottom of the cleat (2) and one side flush with the end of the same cleat and the side of the board.

Now, fasten the two pieces (5) to the top of the outside of the post (7). They will project  $\frac{1}{2}$  inch at each end.

Fasten the piece (8) diagonally across the tops of (5), and close to two of the posts (7). This piece should hole 15-16 inch through the centre.

The posts (7) should now be parallel, 7 $\frac{1}{2}$  inches apart one way, and 12 $\frac{1}{2}$  inches the other way; and are ready to have the large screens (13) nailed firmly to their sides. To support these screens more firmly, fasten the strips (4) to the outside of the posts (7) at the top and bottom. Also, fasten the strips (3) lengthwise, to the outside of the posts (7).

The six pieces (15) are to be placed, equidistant, horizontally across the wire screens, three on each side, to keep them from pressing outward, and should be mortised to (3) before the latter are put on.

Tack the smaller screens to the inside lower ends of the posts (7), and fasten the strips (6) and (11) to the upper and lower edges of these screens between the posts (7).

Put in the shaft (12) so that one end will be six inches below the bottom board. A little pin or nail through the clamp (9), and also one through the brace (8), both ending through the shaft, will hold it in place.

The rack is now complete, with the exception of trimming off some of the corners, and fastening it into the can, so that it may be revolved.

To do this, I jointed two strips, 20 inches long and one inch square, together in the middle, and made a half inch hole half way through the centre of them. This just fits in the bottom of the can, and the lower end of the shaft is fitted to it.

Make an inch hole through the centre of (10), and cut some grooves half way through the same piece, 20 inches apart, so that it will slip on the shaft, and the sides of the can will fit in the grooves. Some little ends soldered to the can, coming up on each side of this piece will keep it in place.

The rack is now ready to revolve. To do this, fasten a strong cord, about six feet long, to the shaft just above (20) and wind it up. Pull on the cord until it is all unwound, and hold it so that it will wind up again by the acquired velocity of the rack, and the latter will revolve some thirty or forty times, according to the length of your cord. It is easily stopped by seizing the top of the shaft with one hand. Then it is ready to revolve in the opposite direction. In this way it may be revolved rapidly or slowly as desired.

Such a rack will accommodate any sized frame, up to 12 $\frac{1}{2}$  inches wide and 18 inches long.

If only Langstroth frames of the usual size are to be used, the rack may be made much smaller.

When I get a pan full of slicings and small bits of comb, I scrape it into the bottom of the rack, and a few turns takes out the honey as clean as it can be strained in any other way. The wire screen should be ten wires to the inch.

Such a can holds about fifty pounds below the rack. A little tube, three-fourths of an inch in diameter, near the bottom of the can, serves for drawing off the honey.

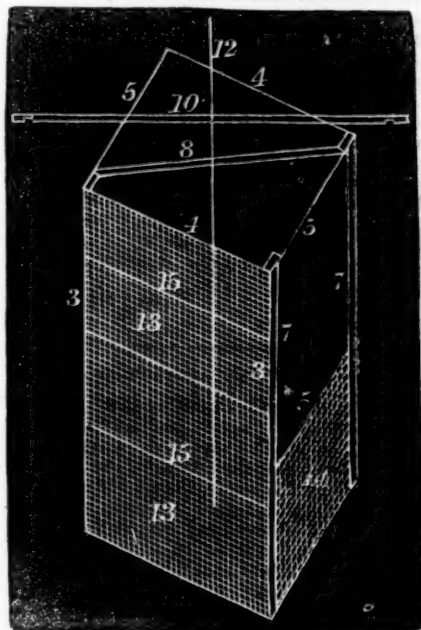
If the honey is allowed to stand a little while, after being strained, any particles of wax which have chanced to get in, will rise to the top; so that most of the honey can be drawn off clear, directly into the glass cans, and save the trouble of straining.

The cost of the can, \$5; screws, screen, and wood work, from \$1 to \$1.50. How long it would take an experienced hand to put one together I cannot say; but it will take a "green un" some little time, if not longer.

Mine was patterned mainly after one I purchased of Mr. Langstroth, with some additions of my own, making it stronger and more durable.

I have not attempted using any gearing on

top, as the cord works satisfactorily, and gearing would be constantly in the way.



The above diagram is intended to represent, in part, the rack for holding the frames; and if you think best to insert it, it will be likely to enable some one better to understand the arrangement.

J. L. HUBBARD.

WALPOLE, N. H., Nov. 6, 1868.

[For the American Bee Journal.]

### Prevention of Dysentery.

Here is a question that I have been asked repeatedly—"How do you manage your bees when they get the dysentery?"—or, "What do you do for your bees when they have the dysentery?"

Well, my friends, my bees do not have the dysentery; and, in fact, I have come to the conclusion that there is no such disease. Here, methinks, I hear friend Pucket say—"That is some more of Gallup's buncom!" And I hear others say—"My bees certainly had the dysentery." Well, mine, too, used to have it, or what is called so, some twenty-five or thirty years ago, but they know better now. But let me explain: It is a condition of the swarm, or of the hive, and not a disease.

I have found a swarm in the spring, in a hollow tree, with the entrance at the top of the cavity or hollow; and when they first flew out in the spring, they did not so much as speck the snow. On the other hand, a swarm at the bottom of the hollow, will discharge large quantities of feces on their first flight. This is in their natural state.

When bees are kept in cellars or a special repository, a large or strong swarm, if not properly ventilated, will be too warm and consume large quantities of honey, more than can be evaporated by insensible perspiration. These will have the dysentery, and will, in all probability consume all their stores and starve before spring. The remedy in this case is to take off all of the honey-board, and if they are not then quiet, raise the hive at the bottom by degrees until they become quiet. What I mean by a very strong swarm, is such a swarm as NOVICE would have from a two-story hive on reducing it to one-story in the fall. It is best in such a case to take out one or two combs from the sides of the hive and move the remainder further apart, so as to give more room for the bees between the combs. On the other hand, when we have a small swarm that occupies just two or three ranges of combs in my hive, (a nucleus, if you please, in which we are wintering a spare queen,) we will say we have them in the right hand side of the hive, we move the hive to the right or the bottom board, so as to close the lower entrance. The division board must be adjusted to suit the number of combs; and the piece of honey-board over the bees can either be moved a trifle or raised; and your nucleus or small swarm will winter exactly as well as the large one. The small swarm will not consume any more honey in proportion to the number of bees, than a large one. But should you attempt to winter such a small swarm in a large hive, they would consume more honey in proportion to the number of bees, and in all probability have the dysentery.

The bees of a small swarm with too much ventilation, will, on your going into the cellar with a light, come out and discharge on the outside of the hive. Give less ventilation, and the remedy is applied at once. A late swarm that has thin watery honey will have the dysentery. To prevent this, give it in the fall some combs from an old swarm containing good honey; and give them the thin honey in the spring, when the bees can fly out. But enough on this point at present.

I wish to be understood on this subject of wintering, ventilation, &c., because it is of great importance to know that bees can be wintered without consuming much honey. Walk down into my cellar and see the bees, it will take but a few minutes. Step up and look at them by the light of the lamp. Do you see the striped fellows in this hive? "Yes, but Gallup, they are dead as a door nail." Not a bit of it. "Well, they don't stir." Let us breathe on them a trifle. "They are alive; that is a fact. Do they keep as quiet as that all winter?" Certainly. And that is not all; they scarcely consume any honey all winter. "Well, Gallup, I do not want to tell you that you lie, but I do not believe a word of it." "Well, sir, your disbelief does not alter the fact one particle. "Why, Gallup, here is your pork, potatoes, and other vegetables; your women must come down here two or three times a day with a light. Don't the bees come out?" Do they come out now? "They do not appear to, that's a fact. Why, Gallup, I always supposed that bees,

when kept in a cellar, had to be fastened in with a straw mat, patent bee preserver, or something of that sort." Well, you now see that mine are kept in with a little common sense, do you not? Yes, but I can hardly understand it." That is because you do not believe your own eyes.

Reader, scarcely a week passes all winter without some such conversation as the above on this subject. If I had only ten swarms of bees, and never calculated to keep any more than that number, and had no cellar, I would build a place on purpose to winter them in, and save honey enough every year to pay the expense.

E. GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

### To Capture Queens and Fertile Workers.

To capture and remove a queen, preparatory to Italianizing, in fifteen minutes, if in a movable comb hive, remove the honey boxes, put on the cap, and give them one whiff of smoke from dry cotton rags at the entrance. Then proceed to the next, if you intend to remove the queen from more than one hive, serving them all in the same manner. Repeat the smoke a second time, waiting not more than five minutes. Now take off the caps, setting each by its hive and returning the honey boxes again. You will now catch four out of five queens in fifteen minutes, as she is the first to go up out of the way of danger. It is not best to wait too long, or you will have more bees to look over.

If in a box hive, take it from its stand, setting a decoy hive in its stead, and invert it, placing an empty hive or box over, closing up any irregularities between the two, and giving the smoke in the bottom of the lower one as inverted.

To get rid of a *fertile worker*. While many have tried and failed, and some have destroyed the whole stock, I will give a method which occurred to me after losing a number of good queens and queen cells. It is true that where a colony has been queenless for some time, the bees having no facilities for rearing a queen, will supply themselves with a *fertile worker*, or a substituted queen, which is difficult to detect, (not differing in appearance from a common worker,) unless she is caught laying. Her presence in the hive may be known by her laying two or three eggs in a cell, skipping about, and laying very irregularly and upon the sides of the cells. Such a stock I remove from its stand several rods, setting in its room an empty hive, looking as much like the one removed as possible. Now, going to some stock, take a frame of brood and honey, eggs and larvæ, shake off the bees, and place it in the empty hive. Then go to the removed one, and take out all the combs but one which contains the least honey; shake off all the bees, and be careful to leave every bee in the hive, to return at their leisure. Place the removed combs on each side of your brood comb, to keep warm till the bees return. Now, if the hive containing the *fertile worker* be left open, the whole thing will

fall a prey to robber bees, and they will return much quicker to their home. The *fertile worker*, being a substituted queen and having characteristics like a queen, is readily detected and will be stung to death by the robbers, as she would be the last to leave the hive.

I have never failed in this way. Perhaps others may know of a better method. This certainly is a very good one; and while some have recommended to destroy the whole swarm, I manage to save them.

Having been somewhat tedious, I will not inflict my past ignorance on the readers of the JOURNAL, or what I did with my first bees in old *box hives* or *hollow gums*, as ignorance needs no delineation.

JAMES BULLARD.

EVANSVILLE, WIS.

[For the American Bee Journal.]

I see by the December number of the JOURNAL that D. V. Conklin claims that he has a patent on the hive of which I sent a drawing and description to you and the editors of the *American Agriculturist* and *Western Rural*. Nine months before the date of his patent, I have made and sold them; and allowed my neighbors to make and use them on the strength of my invention, so that by the act of abandonment, and by sending the drawing and description to the different papers, my invention might become public property. I invented and made the hive four years ago last October and November in Dubuque. Can any man under the circumstances have a better or more legal right to make and use the hive than I have?

I also sent a description and drawing to Mr. E. Gallup on the 15th of April last, which he noticed in the August number of the AMERICAN BEE JOURNAL.

The hive has been owned and in use by five different persons during the last year. Can the last invention enforce any pretended rights of inventor, against the first inventor, who made and used it years before the one patenting it ever thought of or invented the article patented? I do not know that his hive in any way infringes on mine, except from his article in the December BEE JOURNAL.

I would like to have this published, so as to obtain the opinions of the many subscribers of the JOURNAL. A reply will be considered a favor by

JOHN M. PRICE,

and others who are using or going to use the Hive.

To a thinking mind, says Mr. Jesse, few phenomena are more striking than the clustering of bees on some bough, where they remain, in order, as it were, to be ready for hiving. Where a hive is fixed over a swarm, the bees will generally go into it of their own accord, uttering at the same time, their satisfied hum, and seeming to be aware of the object in placing the hive so near them.

No scientific truth can possibly be too trifling or unimportant to be unworthy of preservation.

--Sir J. H. Smith.



[For the American Bee Journal.]

**Scarcity of Honey, With Rational Bee-Culture (Apiculture.)**

Some centuries ago, the Old World was visited from time to time with devastating famine. In large districts of country sometimes half the population died from starvation. Then Progress came, and with her came "Bright improvement on the car of Time;" Science became the hand-maid of practical agriculture; death from starvation was relegated to less civilized countries.

It will be the same with the bees. A few days of good harvest being sufficient to enable my populous colonies to fill their hives with honey, the whole secret lies in having strong stocks in readiness to secure the harvest which those few days offer.

The article of NOVICK, in the December number of the BEE JOURNAL, page 113, is a fair illustration of these allegations, and the parallel below is another:

**BEE'S SELF-MANAGED.**

During the winter and spring the forty bee-keepers within two miles around my apiary, let their hives remain on their stands, without interfering with the work of the bees.

The last year's honey, in large part consumed in the cold days of winter, was soon used up in rearing workers, together with a great number of drones.

The weather being very wet from April till the 10th of June, the bees killed their drones, then already full grown, and the queens stopped laying almost entirely. The apple blossoms yielded no honey. The white clover ceased blossoming on the 20th of May—three weeks earlier than in previous years; and by the 10th of June more than half the blossoms were already withered.

From the 10th to the 30th of June, the queens resumed laying; but the flying of the bees on rainy days had reduced the population of the hives, and the brood consumed the honey as soon as gathered.

On the 1st of July the hives were filled with brood, and young but not yet full-grown bees; and as the honey afterwards became very scarce, they mostly starved or remained weak from want of sufficient nutriment.

From the 5th of July the queens stopped laying. The linden trees had blossomed three weeks sooner than usual. Some hives swarmed very late, but the swarms and the parent stocks remained weak till winter.

By the 10th of August the colonies were again too weak for gathering honey from the summer flowers, such as hemp, coral berries, &c., and the fall flowers, buckwheat, &c. The queens resumed laying; but, as in the spring, nearly all the honey gathered was consumed by the brood as rapidly as it was collected.

On the 16th of September, brood and young bees were plenty, but the flowers were gone. The latter half of September, and the whole of October, having been very cold, the asters and all other fall flowers were cut short.

**RESULT.**

No swarms! No surplus honey!  
Bees starving in winter!  
POOR SEASON FOR BEES.

**RATIONAL BEE-CULTURE.**

As soon as my colonies were taken out of winter quarters, I gave them plenty of rye-flour, and opened the hives frequently in order to equalize all the colonies.

In April all my hives were filled with worker brood. I raised very few drones, as I allow scarcely any drone cells to remain in my hives.

In April, the honey preserved in my hives by underground wintering, was consumed in securing brood. I gave to all my colonies, every two or three days, in bad weather, several tablespoonfuls of syrup to maintain the laying of the queen. On the 10th of June, the bees had no capped nor newly gathered honey in their hives. I had to feed syrup to all my newly made swarms to keep them from starving.

From the 10th of June the remaining white clover gave plenty of honey; but for ten days it was so thin that it seemed to be very slightly sugared water. This continued till the 5th of July, my hives overflowing with working bees.

On the first days of July, all the cells unoccupied by brood were filled with honey. I emptied two or three frames (18 inches by 11) from all my hives. The bees had worked very little in surplus honey boxes.

As soon as the linden blossoms were gone, I opened my hives frequently, to remove frames for my swarms, as I had taken three swarms from every two old colonies. I gave them some sugar water till the 20th of July.

On the 10th of August the young bees were at work on the summer flowers, and later on the buckwheat; and filling three hives, they stopped breeding. By the 1st of September some of my hives were so filled with honey that the queen had no place for laying. I emptied two or three full frames from every hive. In three days these frames were filled again, and again emptied.

On the 16th of September the frost killed all the flowers; but my hives being too full of honey to winter safely, I had to exchange full frames with empty ones from my small swarms—thus equalizing them for the winter.

**RESULT.**

One and a half swarms and sixty pounds surplus honey from every hive.  
GOOD SEASON FOR BEES.

**MORAL.**

I advise all bee-keepers to subscribe for the BEE JOURNAL, and to get the volumes for the three preceding years. The precepts contained in that collection, if rationally practiced, will convince every one that *honey is more abundant than good apiculturists are.*

HAMILTON, ILL., December 10, 1868.

CH. DADANT.

[For the American Bee Journal.]

## Questions by Querist—No. 6.

Querist desires to come again before the readers of the BEE JOURNAL, with some more questions. He has been *silent* for some months, not because he had run short of questions, but because he has been too busy to prepare any. He is very much obliged to those who have made the attempt to answer his former questions, and would now request a solution of the following. If the reader cannot find a solution to some of the questions, please do not fly into a passion and become *personal*. The questions are regarded by Querist as practical ones, and he desires to have practical and philosophical replies.

No. 1.—Some bee-keepers take the position that *natural swarms will gather more honey, build more comb, and have more brood*, during the first week after they are hived, than *artificial* ones. Is this true? And, if so, *why*?

No. 2.—Suppose we have, at the beginning of the honey harvest, two colonies in the same apiary, each having twenty or thirty thousand bees—the same number of *young and old* bees—the same amount of worker and drone comb, a fertile queen equally prolific, the same quantity of honey and bee-bread, in the same style of hive, managed alike in every respect, and one gathers fifty pounds of honey and the other seventy-five pounds—what should cause the difference? We have cases on record very similar to the above, and who can give the solution?

No. 3.—NOVICE says, on page 113 of the BEE JOURNAL, that he cannot doubt but that it "saved them *honey* in some way or other." Now, is NOVICE sure of this? Please tell us what your bees used to make those little pellets of flour and meal *pack* so nicely in their baskets? Do you think it was water? If it was not water, was it not *honey*? If honey, whence did they get it, if not from their own hives? Are you sure they did not even go so far as to *unseal* their honey for the purpose named? If each hive used say five pounds of that rye and oat meal, how much honey think you does it take to pack it into bee-dough? Did you not also observe that your bees began to breed quite rapidly as soon as they began to work on your outdoor food? When they are raising young bees, do they not use up the honey just in proportion to the rapidity of breeding? Think this matter over, and give us your *revised* views.

No. 4.—NOVICE says that his *low, broad, flat*, "shallow things" have given him, the past two years, more *box-honey*, and have been stronger in *winter stores*, than the *tall, narrow* hives. Why this is so he cannot explain. Now, here is a chance for Gallup to do something. Come, gentlemen, let us have this great mystery explained. Quinby is tremendous on explaining "mysteries" and knotty questions, and why cannot he come to the rescue?

No. 5.—Mr. Bingham, on page 115, writes about preparing hives for winter, and comments on Langstroth's statement that he found *frost* on the top of a board placed above six thicknesses of carpet, and then assumes that no *moisture* can pass through a tight board placed over

a colony of bees. Is that sound philosophy? Is not lumber so *porous* that heat can drive *moisture* through it?

No. 6.—On page 110, I find that the darker the hive the more contented the bees are. Now, would you advise me to paint my hive *black*?

No. 7.—On page 114, I observe that young swarms build *worker comb exclusively* at first. No exception to this rule, I suppose. Now, if a young swarm has a fertile queen, and she fills a small comb with eggs during the first forty-eight hours after being hived, and then dies from disease or accident, would the bees make much *worker comb* while they are rearing a new queen? or would the bees decamp?

QUERIST.

[For the American Bee Journal.]

## Sorghum as Bee Food.

MR. EDITOR:—On page 118, vol. 4, of the JOURNAL, you say that a correspondent desires to know, through the JOURNAL, "whether *Sorghum* or *Imphee* is good for bees?" I answer that if the *Sorghum* is *good*, it is *good* for bees. But an inferior article is not good for bees or anything else. Bees will not consume what might be called a *bad* article of *Sorghum*; and if they consume what might be called an inferior article, it will have a deleterious effect upon them, similar to that produced by feeding an inferior article of sugar, or *Cuba* honey. In the spring of 1867, I had two colonies which were scarce of bees and stores, or, in other words, they were weak. About the first of April I commenced feeding them on *Sorghum molasses*, which I had procured in the fall previous for family use, having first prepared it by diluting with water, boiling and scumming it. This was what I called a good article of *Sorghum*, and which had been purchased by me in the fall of 1866 because it was good. It was granulated, and of a bright straw color. The supply of this being quite limited it did not last long; but, while it did last, the bees consumed and stored it away quite rapidly; were healthy, and improving. As soon as my supply of this was gone, I purchased half a gallon of common *Sorghum molasses* of one of our grocers, prepared it as I did the other, and gave it to my bees in the same vessels as the other; and, after waiting for two days and nights, I could not perceive that they had either consumed or stored away any of it. I then procured another half gallon of the best *Sorghum* I could find in town, (which, however, was of an inferior quality,) prepared it and gave it to my bees as before. This they gradually consumed and stored away until about one half of the supply was gone. Then I dissolved three pounds of coffee sugar, added it to what was left, reboiled and scummed the mixture, and gave it to the bees. This preparation they soon used up. During the time they were slowly consuming the third supply of *Sorghum* the dullness and stupidity of the bees was plainly perceptible, but when the supply of dissolved sugar was furnished them they soon revived, became active and vigilant, and none died afterwards.

BELMONT.



[For the American Bee Journal.]

**Bee Journal,****CONTRIBUTIONS AND SUBSCRIPTIONS.**

A new subscriber to the BEE JOURNAL, residing in the city of Memphis, Tenn., writes me thus: "I have just received the BEE JOURNAL. I observe that nearly all the BEE JOURNAL correspondents are from Northern climates, and that their experience in wintering bees differs materially from mine in this latitude. I never house my bees, but let them remain on their summer stands all winter, believing that they will do better there than if housed. My bees are wintering finely. They usually cast their swarms from the 10th to the 20th of April, depending on the earliness or lateness of the spring."

REMARKS.—The BEE JOURNAL designs to be national in its character, and therefore calls for the experience of bee-keepers in Southern as well as in Northern latitudes. But in whom does the fault lie if we do not get the experience of bee-keepers in the Southern States? It seems to us that they alone are to blame, for the columns of the JOURNAL are open to all. As for myself, I am very anxious to hear more about the bee-culture of the South, how the bees are wintered, how many months in a year bees gather honey, how long the surplus honey harvest continues, and the specific sources from which the honey is obtained. Please give us the names of your best honey producing plants and trees, and such other items as you may think will interest us. Let us have a perfect shower of contributions on bee-culture, not only from the South but from the North also, and from the East and the West. We must take the editor of the BEE JOURNAL by surprise; and, if we do, we may soon expect to see an *enlargement of our paper*—for we all should have an interest in the present welfare and future usefulness of the JOURNAL. But when sending articles for publication, please do not forget to send along the names and money of new subscribers. Why cannot every present subscriber add one new name at least to the present list? If you will I am quite sure that we can soon roll up the list to ten thousand paying subscribers. How many readers of the JOURNAL will agree to send in ten new names of subscribers during 1869? How many will join with me to send in fifty new names, each, within the year? During the past six months, I have sent the editor nearly twenty-five new names, and with very little effort too. And I have pledged myself to send fifty names during 1869. Cannot many other devoted apiarians and zealous friends to the improvement and extension of bee-culture resolve to do so likewise?

M. M. BALDRIDGE.

ST. CHARLES, ILLS.

The bee-keeper must not judge of the state of his hive in the spring by its weight alone, because at that time the number of young bees and larvae in it weigh heavy, and may impose on the unwary for real wealth, when the stock of honey is nearly exhausted.—Wildman.

[For the American Bee Journal.]

**Bee-Feed—A System.**

MR. EDITOR:—Since bee-feed seems to range almost from lager-beer up to pure honey, and from wheat flour down to oat meal, I will, with your permission, also give the readers of the BEE JOURNAL my method of feeding—premiering that, as honey is pure food for bees, we should feed no impure substitute.

I take eight pounds of coffee sugar, add seven pounds of boiling water, and evaporate one pound—making fourteen pounds of syrup, measuring about ten pints. Thus I make by weight any amount needed; set it by in crocks; and feed, by measure, to each stock the quantity it needs. In my estimate I have always counted one pound of sugar thus fed equivalent to one pound of honey.

For the last four or five years I have used syrup exclusively at all seasons of the year, and for every purpose needed. And for experiment, I have wintered several strong stocks almost exclusively on it, with good success; giving them their entire winter supply about the latter part of September, which they quickly sealed up. To any one who may think it contains too much water, or that it will not pay for the trouble of making it, I would say—"try it!" By following the above method I am never "guessing," but always know exactly what I am doing.

HENRY CRIST.

LAKE, STARK CO., OHIO.

[For the American Bee Journal.]

**Necessity of Ventilation.**

I have again proof that bees in their hives require the ingress of fresh air in order to health and life. I was this fall absent in New York until late in November, and when I returned I found the weather here had been for nearly a month quite cold, and the hives considerably covered with snow. Desiring that my little favorites might have the opportunity of unloading themselves again, in the event of an expected thaw, before a close hibernation of 4½ months, I did not move to put them in until the 17th of December, when I found the frames in all the hives covered with frost to within a few inches of the living cluster. They were otherwise in very good order, save in one hive in which all the bees were dead, although a good stock with plenty of honey.

On looking for the cause I found this hive, which was a well made one, closely sealed above, and the melted frost had run down and frozen over the front entrance, until it was entirely closed. So evidently, in a changing temperature, their own breath had been the means of sealing them up unto destruction. My bees need ventilating.

My wintering house is a kind of clamp, covered around and over with earth, and that again thickly with buckwheat straw, through which runs a ventilating chimney, with also a ventila-

ting tube and a door of entrance through one side of the bee-house—which is used mainly for a workshop and store room. In this clamp, so arranged with a thermometer, I can regulate the temperature as I please. I find that when the temperature is raised above 40° F. the stocks generally manifest uneasiness; but are most quiet when the temperature stands at from 39° to 40° F.; which, in my clamp, requires the introduction of considerable fresh air. This is let in in such a way as not to admit light. I do not like to have the walls of a wintering house so cold that frost will form from bee breath on the inside. In that case, on every change to sufficient warmth, moisture and a damp room will be the result.

J. W. TRUESDELL.

WARWICK, CANADA, Dec. 25, 1868.

[For the American Bee Journal.]

### Feeding Bees.

MR. EDITOR:—In this section (Chatauqua county, N. Y.) bees as a general thing have done very poorly last summer, probably because of the dry hot weather that continued through the entire honey season. The spring was cold and wet, thus making early forage almost a total failure. Early bee forage is not usually to be depended on here, in consequence of late frosts and cold high winds. Our principal honey-producing plants are white clover and basswood, mostly the former.

As white clover is our main dependence for honey, and it continues in bloom only a short time—five or six weeks at longest—we cannot take too much pains to have our hives well populated at its beginning. It is a well established fact that when bees are excited by daily employment in feeding or gathering honey, breeding is carried on most vigorously; whereas, if they are idle, the queen will lay only moderately, or cease entirely, until honey is again to be obtained, which may be too late, so far as white clover is concerned. The bees that gather honey from clover must be matured from eggs laid at least a month previous to its blossoming; because it requires twenty-one days to hatch a worker bee from the egg, and eight or ten days more for it to gain sufficient strength to work. Thus it will readily be seen that bees matured from eggs when white clover is already in bloom, would be consumers instead of producers in this locality. It is on the rising generation that we have to depend for surplus honey; and if we have our hives well filled with young bees, at the commencement of the honey harvest, we may well expect to obtain early swarms and a good yield of surplus honey. But if not, we shall certainly be disappointed if we expect either.

I have practised feeding my bees in early spring for the past three seasons, and feel confident that they have paid me for the little extra expense and trouble, as they swarmed several days earlier, and gave me double the quantity of surplus honey. As I feed all my bees, I have an opportunity to compare with my neighbors

who do not feed. All bee-keepers know the advantage which early swarms have over late ones. In the season of 1867, I received from seventeen colonies 1,020 pounds of beautiful honey, and twenty-four young swarms. This season, 1868, I obtained from thirty colonies 850 pounds of equally as nice box honey, and thirty-four swarms. It will be seen from the above figures, that bees in this section have not stored as much surplus by more than fifty per cent. as they did in the preceding year—although they were fed and cared for precisely alike in both years. When the flowers do not yield honey of course the bees cannot gather it.

The construction of my feeder is such that I furnish my bees with water, rye flour, and sugar syrup, all at the same time, without attracting the attention of robber bees; and they feed on these readily, without diminishing the warmth of the hive, which is important in maturing brood in early spring.

I have tried many ways of wintering, but I prefer to leave them on their summer stands when in a suitable hive. I have used many kinds of bee hives, but for the past two seasons have been using one of my own invention, not feeling satisfied with those I had in use before. It is intended for wintering bees in the open air, being double—the frames, which are moveable, form the inner hive. It is simple and cheap in construction, calculated to be packed in winter with cut straw, chaff, or shavings; and is so arranged that all moisture arising from the bees passes into the packing, thus always keeping the bees warm and dry. As the construction of both my hive and feeder is different from any I have seen described in the JOURNAL, I will give a description of them, illustrated by an electrotype of each, if desired by you or the readers of the JOURNAL.

J. B. BEEBEE.

CASSADAGO, CHATAUQUA CO., N. Y.

[For the American Bee Journal.]

### Hives, Queens, and Pollen-Substitute.

MR. EDITOR:—My first real commencement in the bee business was last spring. I bought twenty swarms, transferred nine into *American Hives*, and the remainder into Langstroth Standard Hives. I cannot say that the American meets my expectations as a convenient hive. The bees have built their combs with a bulge here and a depression there, that I find it impossible to take full frames out of one hive and put them in another without too much trimming. In fact I can scarcely get them out without breaking, which I never find to be the case with the Langstroth frames, even if built up in the same manner. The Langstroth frames being open their full length makes them decidedly easier to handle, as they do not require to be put back with such exactness as demanded by closed top frames.

My mode of transferring was to drive out the bees, and use all the combs that could be fitted in the frames. I first used fine store twine for fastening; then tried strips of brown paper, as

recommended in a former number of the JOURNAL. But this latter would not answer, as the bees gnawed it off in less than twenty-four hours, and of course before they had fastened the combs. I now use broom twine, which does very well.

The bees transferred in June scarcely gathered honey enough to live upon. They killed off all their drones at once. Linn came into bloom the latter part of the month. They collected enough from that and buckwheat to winter upon, except three swarms which I very foolishly divided at the time of transferring. The three queenless parts hatched out their queens, all of which were afterwards lost. I then put in a frame of brood into each, with the following results: No. 1 hatched out a queen. I was very busy at that time and did not look at it for ten days after. I found no sign of a queen, but plenty of moth-worms. I burnt that lot, giving the bees to another swarm. Nos. 2 and 3 hatched out queens on the same day. I watched closely when the drones were flying. At last I saw something uncommon about the action of the bees. Whilst watching, I saw a very small glossy black queen alight from her flight, but with no signs of impregnation, go into hive No. 2. She had hardly disappeared when I saw a very handsome queen go into hive No. 3, with signs of impregnation upon her. The results are, queen No. 2 laid drone eggs, which hatched out. No. 3 grew to be a tolerable swarm, considering the chance they have had. Query, was No. 2 a fertile worker? I could scarcely tell the difference between her and a common bee.

Bees in this vicinity failed to make any surplus honey to any amount. Will some of your correspondents inform me if they have any plan of feeding *bee-bread* in the hives, and what they use? Will rye-meal mixed to a paste and spread upon cotton cloth answer, if placed on the top of the frames.

FREDERICK CRATHORNE.

BETHLEHEM, IND.

[For the American Bee Journal.]

### New Smoker Described.

MR. EDITOR:—I have an item which I think may be of importance to my bee-keeping friends, who are so very liberal in keeping the readers of the JOURNAL posted in their discoveries and improvements in bee-keeping.

The item I have reference to is a convenient smoker, to subdue and control our bees, and is simple and very cheap. I tried various ways of smoking bees. I tried rags until I became satisfied of their inconvenience. I then tried pieces of decayed wood, but found that in laying the kindled wood about, much risk was incurred, as I came near setting our house on fire on one occasion. I also tried Quinby's Smoker, and that did not suit me. So in trying and experimenting I finally found something that just suits me, and we think that what suits us will be apt to suit others. It is on a plan somewhat like that described by Mr. Quinby. Take a piece of sheet-iron and make a tube about eight inches

long and two inches in diameter. This is easily done with the small rivets used by tinmen; and almost any person can make it. Now make a plug for each end, tapering down each to a point. Bore a quarter inch hole in the plugs, and cover the large ends of the plugs with screen wire, which I bend so as to raise them in the centre; this keeps trash from filling the holes in the plugs. Next the one end is nailed fast, and the other is left movable that it may be taken out when the pipe or tube thus prepared is to be filled with decayed wood—which is to be kindled at the open end of course. You yet want a handle, which is made by boring a two inch hole in a piece of 1½ inch plank and shaping it to suit you. Then slip the tube into it, and it may be fastened by inserting a nail between the wood and tube. One plug should be shaped convenient to be held in the mouth when blowing smoke through the tube; though in all ordinary cases I simply blow *across the mouth* of the tube after lighting the wood. When I wish to blow the smoke through the tube, I insert the plug made for a mouthpiece, and then I can smoke the bees sufficiently in quick time. By adding fuel occasionally you can keep it burning any desired length of time, keeping the one end open when not in use.

SAMUEL MAY.

EDDYVILLE, IOWA.

[For the American Bee Journal.]

### Patent Claims.

Having published the claims granted to L. L. Langstroth, by the Patent Office, on what is known as the Langstroth Hive, in the earlier editions of the "Hive and Honey Bee," and in numerous small pamphlets and circulars, as well as printed them upon the back of all deeds conveying individual or territorial rights, sold for many years past, we had supposed that they were generally known to the bee-keeping public. But we find that many correspondents of the BEE JOURNAL persist in speaking of the invention as it were simply a hive with movable combs of particular shape and size, and could not be constructed of different dimensions or general arrangements, without going away from the "claims" of the patent.

Others gravely describe hives which they have constructed and used, and which they announce are free to all, as they make no claim to a patent on them. These either do not know, or forget to state, that some of the principles, and in many instances the most important in their hives, are already covered by our re-issued and extended Letters Patent. As therefore several of the correspondents of the BEE JOURNAL call for the patent claims of the various patents, perhaps those who are already posted will bear with us in requesting space to present again the claims granted to L. L. Langstroth by the Patent Office under re-issue No. 1,484, and which have been extended for seven years from October 5, 1866, by the then Commissioner of Patents.



## CLAIMS.

"What I claim as my invention, and desire to secure by Letters Patent, is—

*First*—Constructing and arranging the movable comb frames of bee-hives in such a manner that when placed in the hive or case, they have not only their sides and bottoms kept at suitable distances from each other, and from the case, substantially in the manner and for the purposes described, but have likewise their tops separated from each other, throughout the whole or a portion of their length, substantially in the manner and for the purposes set forth.

*Second*—Constructing and arranging movable frames in such a manner that when they are inserted in the hives, the distances between them may be regulated at will, substantially in the manner and for the purposes described.

*Third*—Constructing movable combs and arranging them in the hive, in such a manner that the bees can pass above them into a shallow chamber or air-space, substantially in the manner and for any or all the purposes set forth.

*Fourth*—The shallow chamber in combination with the top bars of the laterally movable frames, or their equivalents, and with the perforated honey-board upon which to place honey receptacles, substantially as and for the purposes set forth.

*Fifth*—A movable partition, or divider, substantially as described, when used in combination with movable frames, substantially in the manner and for the purposes described.

*Sixth*—The use of movable blocks for excluding moths and catching worms, so constructed and arranged as to increase or diminish at will the size of the bee-entrance, substantially in the manner and for the purposes set forth.

The reader will observe that there is nothing in these "claims" which limits the arrangements of the hive, as far as regards shape, size, manner of supporting frames, side or top opening, &c. All these details can be, as they have been, varied to suit the ideas or locality of the parties using the movable comb frames—which are the central idea around which nearly all bee hive inventors, constructors, and patentees in late years arrange outside fixtures to suit their own tastes or the supposed wants of the bee-keeping public.

The decision which was rendered at Utica in 1866, a copy of which was published in the January number of the BEE JOURNAL, makes the first clear—the defendant being decided to have infringed the Langstroth Patent, in that he used frames constructed substantially as specified in our first and second claims. The case of Furman & Parsons (owning the Langstroth Patent in Iowa) vs. Silas Dodd (using the "Harbison Hive") decided by the United States Court at Des Moines, Iowa, May 15, 1868 might also be cited. When to these decisions are added the facts that the claims of the inventor have been thrice passed upon by the Patent Office, and upheld the last time in the face of a most persistent and unscrupulous opposition to the extension of the Patent, by certain infringing patentees of the hives, it appears only fair to say that his right to said Patent,

having been fairly, fully, and repeatedly tested and confirmed, parties making use of any of his patent in hives of their own construction, ought to inform the public of that fact—especially when stating that they claim no patent, and leaving the inference that all are free to use all parts of their arrangements.

L. L. LANGSTROTH & SON.

OXFORD, BUTLER CO., OHIO.

[For the American Bee Journal.]

## Form of Hives and Wintering Bees.

In the BEE JOURNAL, Vol. 4, No. 4, page 72, in an article headed "*Wintering Bees on their Summer Stands*," Mr. J. T. Langstroth, after giving his method of preparing hives, &c., says, "any bee-keeper can thus have his bees put up to winter as well, (if not better) on their summer stands, than in the best winter depositories, and this even in Minnesota." As I have been called upon, in several private letters, for my opinion, I propose to give it for what it is worth, through the JOURNAL. Free, honest, open discussion is what is wanted, to get at the facts.

When I lived in Canada, I used some of the old fashioned straw hives, and had some of them made broad, and flat on the top; and it is a fact well-known to Canadian bee-keepers, that a straw hive will allow all the moisture to pass off, on the same principle that it would in the wool or carpeting. The combs will be perfectly dry in all weather. Yet in long continued cold weather my bees would starve to death, with abundance of honey in the hive. I know but very little about Minnesota weather from actual experience; but last winter I was hauling wheat to the railroad in Minnesota. One morning the temperature was 15° below zero at home; 36° below, at the station; and at Spring Valley, twenty-five miles further west, it was at 36° below.

Bees will stand any amount of cold when in the proper condition. We will suppose the bees in the warm central chamber, as he says. Now let us see their condition. They have unsealed liquid honey deposited in the combs, in the cluster, and they also have some sealed honey in their immediate reach—we will suppose enough to last them twenty days. Now then comes on a cold snap. In Massachusetts, or in Ohio where Mr. Langstroth lives, it is a rare occurrence if there is not a change in ten or fifteen days, so that the bees can expand; and if the combs are dry, they gather in more honey, and are soon prepared for another cold snap. But a few winters ago we had in Wisconsin (and Minnesota, I have every reason to believe is as cold as Wisconsin) a winter that for thirty-four days in succession the thermometer ranged from 10° to 36° below zero. In such long continued cold the bees consume all the stores in their immediate reach, and contract their cluster as small and close as possible; and to expand their cluster and move laterally to combs containing cold sealed honey, is something that I never knew them to do in such cold weather. The consequence is, they starve to death with

plenty of honey in the hive. But if they have honey above the cluster for such an emergency, they are all right, for the warmth of the bees keeps the honey directly above them sufficiently warm at all times. Bees will perish (with the thermometer at 10° below zero,) if compelled to cluster between combs filled with sealed honey, nearly if not quite as soon as they would if compelled to cluster between sheets of ice.

In the cold winter mentioned above, every swarm of bees perished, with abundance of honey in their hives, that were attempted to be wintered on their summer stands in shallow hives—whether Langstroth hives or box hives. Yet in box and frame hives from twelve to fourteen inches high, bees wintered well on the same stands. But, for the sake of our friend Langstroth, we will allow that they winter well, even in Minnesota, if prepared as he directs. Yet what are they good for after wintering in this climate, in comparison with a swarm wintered in a hive with greater depth of comb? The readers of the JOURNAL will please take notice and govern themselves accordingly, that I never condemned the Langstroth hive, or the Langstroth principle. I only object to the *broad shallow form, for this climate*. And my reasons for this have never been successfully controverted.

Some time last spring, Mr. R. K. Crum (now editor of the *Osage Republican*) sold a number of swarms of bees at auction. He sold two to Mr. Charles Brownell, of Osage—one in a box hive, and one in a Langstroth. The combs in the latter were six inches in depth; and when I made a good swarm from his box hive, the other had just commenced to gain a trifle in numbers. They failed to store honey enough to winter on, and he destroyed them this fall. A Mr. Dockstader purchased five swarms, one in a Langstroth hive, three in Lee hives, and one in a hollow gum or log. I made swarms for him from his Lee hives, all of which have done well; and he made one from his log hive, but received nothing from his Langstroth hive, in which the depth of combs is seven inches. Mr. J. P. Long, a preacher of the Gospel at Osage, purchased one swarm in a Langstroth hive, the depth of comb seven inches. He had a box partly filled with honey, probably about ten pounds, and no swarm. Mr. B. H. Whitacre purchased two swarms, both in Langstroth hives, in which the depth of comb was about eight inches. I took a swarm from his about a month after my swarming, and my neighbors, was all done up for the season—too late for them to do anything this season. (Mr. Dockstader and Mr. Whitacre are readers of the BEE JOURNAL.) These swarms had all been wintered in Mr. Crum's cellar, and wintered in a good condition. I believe he had the agency of two counties for the Langstroth hive, when I came here, and he condemned it and bought the right to the Lee hive. He did not know that he could *alter the form* and still have a *Langstroth hive*.

What we want, and what we must have in this latitude and further north, is a hive with at least ten inches depth of comb, if we expect to have any satisfaction from our bees. And it

must be in a more compact form, so that the bees can cluster naturally and the queen can breed up to her full capacity early in the season; or else we shall be left far in the rear of our neighbors. We must have this, whether we winter in special depositories, or on their summer stands.

Mr. Furman, of Cedar Rapids, has the agency for the Langstroth hive in this State. We will suppose that he comes into this part of the State, with his hive in the broad shallow form. He will be met with such remarks as this—"We have tried the Langstroth hive, and it is good for nothing, &c., &c. We like the Kidder hive, the Lee hive," or some other of the thousand and one hives that have been got up since the introduction of the movable combs by Mr. Langstroth. Well, there is no use wasting any more words. Friend Furman, furnish us with a form of hive suited to our climate and we shall not have the least particle of fault to find. Call it a Langstroth hive, and then we shall not be throwing away our money to other parties. Remember, I never have doubted or said that the broad, shallow form was not adapted to Mr. Langstroth's climate; neither did I ever object to the Langstroth principle. There is no trouble in wintering bees in the shallow form of hive in a special depository; but the spring plays the mischief. Our hives become almost depopulated before the weather gets warm enough for the queen to breed as she should.

Finally, friend Furman, if you or any of your agents come up this way, do not fail to call on Gallup, and you will not only find him good-natured, but chock full of gas.

E. GALLUP.

OSAGE, IOWA.

[For the American Bee Journal.]

### All Worker Combs.

In all the articles that I wrote for the JOURNAL, I wish to have it distinctly understood that I wrote for the benefit of those who know less than I do, and not for those who know more. Neither is it necessary for beginners to follow the instructions to the letter. They should strive to understand the theory or principle, and then they can go to work intelligently. Now some individuals write to me that they laugh at my productions. Well, I would sooner hear you laugh than cry, at any time. But remember this: Were you born a natural bee-keeper with all the necessary knowledge, or did you have it to learn? I had to learn it, and there are others still in the same fix. Instead of laughing, would it not be better to give us a helping hand? Give us some of your great knowledge through the JOURNAL. I for one, am just as anxious to learn as ever I was. But "enough of this."

How to secure all worker comb is the question. We will suppose you have few swarms in frame hives to begin with; and, for the sake of illustration, we will further suppose that you have them in the form that I use (for I know exactly how that works.) About swarming time take out one queen and a smallish swarm

from a good strong stock, and hive them according to my directions, how to make natural swarms artificially. (See July No. B. J. 1868.) Leave the old swarm on its old stand, because if the bees are not removed, they are not so apt to raise unprolific queens; or, in other words, they will raise natural and not forced queens. This question I have discussed in an article on queens and queen-raising. Adjust your division board in the next swarm to suit the size of the swarm; as their first want is worker comb, they will build worker comb in all cases. Always remember to give the young swarm one comb containing nearly mature brood, some unsealed larvæ, and honey. As soon as the queen cells are all sealed in the old stock, separate them, and start a nucleus for each, containing one comb with larvæ and honey. Leave one queen cell in the old stock. Should you take the comb with the cell attached from the old hive, replace it with mature brood from another hive, for the object is to keep the old stock strong and populous. Remember also that you have not a laying queen here, to supply losses.

Your new swarm will build at least eight worker combs, by inserting the empty frame invariably in the centre to fill; and I frequently have them fill the whole hive. As soon as they commence building drone comb, go to the old stock and take out full frames enough to fill the hive which contains the old queen, for by this time your young queen has hatched. Insert your division board in the old stock containing the young queen, and give them empty frames, one at a time, for them to fill, placing these in the centre of the cluster, and they will build worker comb invariably. Remember that when you take out a frame where an old queen is, if the bees attempt to fill the empty one with drone comb, it is better to move the full combs closer together and insert an inch board in place of a frame. Then you can put in a full frame, by and by, from some swarm that has a young queen. Your nucleus can be strengthened up, after the queen is fertile, by transposing with your strong colonies that have old queens, or by drumming out young bees from old stocks. I prefer the latter method, because I can then take out just what I want, and no more. Your nucleus must be strong at the commencement; that is, use one frame and bees enough to occupy that frame and be somewhat crowded, when the division board is properly adjusted.

Remember what I have already told you, that early in the season the tendency in all the swarms that have a prolific queen, is to build worker comb, providing they are not gathering honey too rapidly. With an unprolific queen, or one that is failing, whether young or old, the tendency is to build drone comb. Late in the season the tendency is to build drone comb in all swarms, especially if built at the outside of the cluster. From young swarms, with young queens, that are building combs faster than the queen can supply them with eggs, you can take one comb and exchange with some swarm where the queen has not room enough for egg-laying. That is, exchange an empty comb for one filled with brood.

There is little danger of swarming where the

old queen is, provided you occasionally draw off some of the working force, to strengthen other swarms.

I have been asked this question repeatedly—"How do you mix up your bees without having them to quarrel?" Drum out your bees into the cap of the hive; deprive them of their queen and put her back where she came from. In a few minutes the bees will become aware of their loss, and then you can put them where you want them—a part in one swarm and a part in another, if you choose. They will be kindly received in every instance. At the time when they are raising abundance of young brood and gathering honey, is the very time to perform these operations. In drumming out, do it in the middle of the forenoon, when the old bees are out at work; thus you will get most young bees that have not yet become located, and they will stay where you put them. If you have an old queen that has commenced failing, or a young one either that has commenced doing so, you will get very little worker comb. In fact, the more prolific the queen, the more worker comb you will get in building up a swarm. After your swarms are all built up, give abundance of box-room and free access to the boxes, and you will have but little trouble from natural swarming.

I do not follow any set rule in making swarms, making them sometimes in one way, and sometimes in another; but the new beginner must know one way, and the reason for it, and then he can do as he chooses.

In transferring I have frequently to use up small pieces of comb. I put a cross-bar in the middle of the frame, and fill up the upper part with pieces of comb, and the bees invariably build drone comb below the cross-bar, unless I attach guide worker comb to the under side of the bar. Now, friend H. B. King, was not your comb built, as Gallup said it would be, down to your centre bar? And if your centre bar had not been there, would not the bees have extended a part of those combs down to the bottom all worker comb? You will remember that I did not say the American hive, but the form of the hive. Furthermore, I have never recommended the American Hive to any one. I have frequently, in my articles, mentioned several forms of hive for the sake of illustration, but I have endeavored in all cases to say the form instead of the hive itself. I have given the reason why the shallow form of the Langstroth hive does not work in this climate. But I still recommend the Langstroth Patent over all others.

ELISHA GALLUP.

OSAGE, IOWA.

"When, amidst the solemn stillness of the woods, the singing of joyous birds falls upon the ear, it is certain that water is close at hand."—*Livingstone's "Zambesi."*

Bees are not apt to sting when they swarm; therefore it is not necessary to take much extraordinary precaution against them on such occasions.—*Wildman.*



[For the American Bee Journal.]

**Bee Disease in Kentucky.**

MR. WAGNER:—Your favor of the 2d instant came in my absence. I answer as soon as I could note contents.

Bees in this section have done poorly all the season. While the poplar was in blossom they did well for about eight days; but till they commenced dying, they only made a support. They produced about one swarm in a hundred, last spring.

About the 20th of August, I noticed a great number of dead bees on the bottom board and in front of a hive. On examination, I discovered that about the half of them were still alive, crawling about among the dead; and when I placed a handful of them by themselves, I found some four days passed before life was extinct. But in ten days from the first attack every stock of mine (twenty-four in number) was dead.

The bees of some hives did not all get sick or diseased at the same time; and the well ones cleaned out the dead. In some cases there were not a dozen bees left in a hive. So it has been with our friend Broll, who once rejoiced in forty stands, and awoke to see (as he thought) that his bees had fled to parts unknown.

My yard and garden were strewn with the dead and dying—many having gone out to get relief from the dead at home. All the honey made this season is very dark and bad flavored.

We have but few individuals in this part of the State who have as high as one hundred stocks. I know in Oldham, Shelby, and Jefferson counties, four men with one hundred stocks each, twenty with sixty, fifty with thirty, one hundred with fifteen, and one hundred and fifty with from one to ten. Now I am satisfied that of all these, not one stock in a hundred is alive to-day. Yet nearly all I have examined have plenty of honey left. The strongest stocks, in numbers and surplus, were as liable to go as any.

I have not heard of a swarm being seen astray this fall in either of the three counties named; and if seven or eight thousand had taken wing, I presume some one would have been seen. Therefore this part of the account is a *hoax*.

Yours truly, W. F. CUNNINGHAM.  
MIDDLETOWN, KY., Dec. 21, 1868.

[For the American Bee Journal.]

**That Bee Disease.**

In September last, when the first cold weather set in, my bees began to die. First, I found in one of my best stands, with all the frames full of sealed honey and some in boxes, the bees all dead. After that the bees began to die in all my stands, mostly pure Italians, and some hybrids. First about one third of the bees would be dead; next I would find the queen lying dead before the hive; and in about a week more the whole colony lay dead in and around the hive. Sometimes the queen would live, with a handful of bees.

The hives were full of honey gathered the latter part of the season; and the least ones had enough to winter on. In this way I have lost forty stands, and have now only fifteen skeleton colonies, which I think will also perish before spring.

I first thought I was the only victim in this way, but I have now ascertained that all the bees have died in this neighborhood, and as far as thirty miles north and eighteen miles south. Yesterday I saw a letter from Kentucky, in the *Country Gentleman*, where a man thought his bees had stampeded. I suppose they stampeded in the same manner as mine, from the hive to mother earth.

Some of the colonies had brood, others had not. Late in October all the queens had commenced laying again. To some colonies I gave three queens in about two weeks, and they lost each in turn.

My bees are Italians and hybrids, in movable frame hives. My neighbors have black bees in boxes and "gums."

In looking over my German books, I find that bees sometimes die for want of bee-bread; and on examining the frames of the dead stands, I find pollen very scarce. Some had none, while others have died with some of it in the combs.

Have any of the old bee-fathers any idea of the nature of this ailment? I do not find anything relating to it in Mr. Quinby's book. There was no foulbrood in the hives. Last year I lost some stands, possibly from the same cause. We have had now two or three late springs, the time when bee-bread ought to have come in. I think mustard is the best crop for pollen. I had melilot clover last year, but could not find my bees to work on the white blossoms, and plowed it under.

Please publish this at an early date, as I am desirous to know the cause of this bee mortality.

T. HULLMAN, SR.

P. S.—Friend Baldrige told me last spring to give the bee-veil to my wife, if I had one. I am happy to tell him that I have one of the best of wives; but to open fifty or more hives of bees, cut out queen cells, drone comb, &c., without protection to the face, I cannot. He is ahead of me in that, and will please give me his *modus operandi*. My bees have a partiality for the eyes, and one or more sting in or about them I do hate, and before I commence blowing smoke it is usually about too late. I do not think the Italian bees less inclined to sting than the black. I had queens from different apiaries. The finest and handsomest were from Mr. Gray, of Reily, Ohio.

Some factory might make stuff for face protection. The common bobbinet is too close and heavy. I always had some stands that were "inapproachable."

If any bee friend should come this way, he will please stop and see the condition of the hives and combs in which the bees died. It is my opinion that the bees died for want of pollen. If this is the case, what could be done? Would not meal be injurious if given to the bees in fall and winter.

T. H.

TERRE-HAUTE, IND.

[For the American Bee Journal.]

**That Bee Disease.**

MR. EDITOR:—I see from an article in the JOURNAL by C. E. Thorne, of Selma, Ohio, that there is some disease among his bees. The same disease (if it be a disease) is prevalent here to a great extent. In this and the adjoining counties I have heard of half a dozen more men who have lost their whole apiaries of from thirty to forty stands each. The bees die, leaving the hives full of honey. Some have bee-bread or pollen, and some have none. All I have heard of dying are black bees.

Is it a *disease*, or is it *old age*? Bees in this section ceased to gather any honey after the 1st or 10th of July, except the Italians, which gathered considerable from wild flowers, mostly the lady-slipper, (I do not know its botanical name,) a weed that resembles smart-weed. When they ceased gathering honey they ceased breeding, and as breeding ceased about the 1st of July, the bees are now over four months old. Is not that their natural term of life.

My bees are all Italians or hybrids, and appear healthy and in good condition for winter. They stored about two pounds surplus honey per hive, forty hives.

Please send me the November number of the JOURNAL. I failed to get that number, and as I consider each number worth two dollars to me, I do not want to have my file broken.

H. NESBIT.

CYNTHIANA, Ky.

[For the American Bee Journal.]

**The Bee Disease.**

MR. EDITOR:—I see in the December number of the BEE JOURNAL, an account of a new disease among bees.

On the 8th of October last my strongest Italian stock was taken in a similar manner, and although the disease did not last three days, it reduced the stock from a powerful swarm to a mere nucleus. The bees seemed to drop in a stupefied state on the bottom board and crawled slowly to the entrance, then out on the alighting board, from which they dropped into the grass. They seemed to want to get as far from the hive as possible before dying.

I supposed my bees had been poisoned, as I knew they had been rather mischievous—having even entered the hives of my neighbors, carrying off the winter stores without permission. In one instance they took possession of a dining hall, and drove the family from the breakfast table on which there was honey. I was told they even came through the keyhole to hold possession. Now some of the knowing ones claim that they can poison bees; when they attempt to rob others. How that is I do not pretend to know. I have come to the conclusion that my bees were not poisoned intentionally.

I have tried various experiments with the dead and the dying bees, but with no satisfactory re-

sult. I yet believe that my bees had been working on some poisonous substance; but that it was so far from my apiary that, as the weather came off cold, the bees could not keep up the line of communication, and that those that found the forbidden fruit died before they could lead others into fatal temptation.

Now I do not believe that bees naturally would forage on poisonous substances; but that in some cases, as in the extreme excitement of robbing, they may partake of substances which, under other circumstances, they would not notice.

May not some such disease as Mr. Thorne describes be the cause of the sudden disappearance of the bees in the neighborhood of Lexington, (Ky.,) the bee-keepers not noticing the hives till the bees were all gone?

JOHN T. ROSE.

PETERSBURG, MICH.

[For the American Bee Journal.]

**More About That Bee Disease.**

Will some of your old bee friends please answer the following, for, in all probability, in their experience, they may have met just such cases.

*First.* This has been the most fatal season to the interests of the apiarian that has probably ever visited them, at least in this section—very little honey being gathered in any one's apiary.

*Second.* In most locations no swarms issued from any of the old colonies—notwithstanding they lay out on the sides of their hives in great numbers.

*Third.* Where a swarm came from an old hive, that hive invariably, I may say so, died. In all my inquiries among bee-men I know of but one instance to the contrary—and I expect that will die.

*Fourth.* Where they have died, they have invariably left large quantities of honey. And, what is stranger still, in not more than one case in ten is there any bee-bread. So universal is this lack of bee-bread, that it has been remarked by every one, and I have been at great pains to inquire of all the old bee-men living in the country. Besides this, so far as I can learn, all the swarms of this year have also died. The bees do not starve and fall down in the hive; for, in opening a hive, there may often be found a dozen or so, and often not one.

Now, we would like to have some information on this subject; and, if there is a remedy, should be pleased to have it made known. Why is it that it is those casting swarms that invariably die? And why is there no bee-bread?

CLATTON.

BLOOMINGTON, IND.

When in natural swarming the bees fly too high, they are made to descend lower and disposed to settle, by throwing among them handfuls of sand or dust; probably the bees mistake this for rain.—*Widman.*

## THE AMERICAN BEE JOURNAL.

WASHINGTON, FEBRUARY, 1869.

THE AMERICAN BEE JOURNAL is now published monthly, in the City of Washington, (D. C.,) at \$2 per annum in advance. All communications should be addressed to the Editor, at that place.

Unavoidable circumstances constrained us to furnish "copy" for this number of the BEE JOURNAL at an earlier period in the month than usual, and thus several articles intended for it had to be deferred — among these the description and illustrations of the Eureka hive.

In addition to the account of the bee disease in Kentucky, Indiana, Ohio, &c., contained in this number, we have received several other communications too late for insertion this month. The disease is most generally attributed to the want of pollen. We doubt whether this is correct. The want of pollen might restrict and finally prevent the production of brood and wax; but we do not think the effect would be so sudden, sweeping, and widespread.

A correspondent desires to know whether any mode of feeding rye, oat, or buckwheat meal to bees, in the interior of the hive, in early spring, has been devised; and, if so, would be pleased to have the process communicated through the BEE JOURNAL.

We have received from Mr. J. Winfield, of Canfield, Ohio, a neat pair of forceps or tweezers, intended to be used for removing dead bees from cells in which they died. We consider it a useful and convenient implement, now that the value of empty combs is properly appreciated. Mr. W., we understand, would send a few by mail, postage prepaid, at fifty cents each, to such as may desire to have them.

The article on Foulbrood contained in our present number, is a close and accurate translation of the essay on that subject by Dr. Preuss, recently published in the *German Bienenzeitung*, for which we are under obligations to the "Devonshire Beekeeper," Mr. Woodbury, of Mount Radford, England.

The series of articles on that subject contained in this and the two preceding numbers of the

BEE JOURNAL deserve to be carefully studied by all those in whose apiaries the malady treated of has been introduced. We do not, indeed, wholly concur in the opinions of the writers, but think that, between them, substantial truth has been reached. From a review of the matter as now presented, it seems most probable that the disease originates in putrescent pollen, as Mr. Lambrecht claims; and is diffused and perpetuated, according to Dr. Preuss, by the fungus which finds a soil congenial to its development in that decaying substance. If this be so, the remedy is to be sought in the removal of the pollen, and the application of means to arrest and suppress the fungus.

The "BEEKEEPER'S GUIDE BOOK," by E. Kretschmer, of Red Oak Junction, Iowa, of which we have just received a copy, is an excellent little manual, embracing much information in practical bee-culture, which beginners especially will find serviceable.

[For the American Bee Journal.]

## Introducing Queens, and Wintering Bees.

LETTER FROM PORTLAND, MAINE.

Having about a dozen hives of black bees that I wanted to Italianize, I invited J. L. Hubbard, Esq., of Walpole, N. H., to visit me and bring his pocket full of Italian queens. He accepted my invitation, although we were strangers, brought a beautiful lot of Italian queens, took out my black queens and introduced the Italians. It was really interesting, instructive, and amusing to witness his manner of handling bees. I think I could Italianize an apiary now with safety. Still, if I had it to do, I would invite Mr. Hubbard to help me, as he is so well posted and his charges are very moderate.

In order to assist in forwarding the bee enterprise of this State, I have bought twenty hives of Italian bees to distribute in this vicinity next spring. A part of these are already sold.

I have removed my bees into my store cellar, where I invite my friends to look at them almost daily. I set them on a hanging shelf about three feet from the ground. This keeps the rats and mice from them, and enables me to pour my ashes under them to absorb moisture. The temperature ranges from 40° to 44°. The bees appear to be doing well, and are comfortable and content.

The cellar is not quite dark, but the bees are not stopped in. I had one colony stopped in, and although they had abundant ventilation, they were still so very uneasy that I was obliged to let them out, when they soon became quiet.

You may hear from me again, if no one better qualified keeps you posted up in the beeology of this State.

M. G. PALMER.

PORTLAND, ME., December 25, 1868.



[For the American Bee Journal.]

**The Season of 1868.**

MR. EDITOR:—The white clover was of short duration this season on account of the drouth: consequently the swarming season was very limited. When the clover failed our bees ceased swarming. I had only sixteen swarms from thirty-three stocks, which was an average increase in this country.

The bees scarcely gathered their living from the time the white clover failed, until the appearance of the buckwheat blossoms—a space of four or five weeks. Only twelve of my young swarms were in a condition for wintering separately. My old stocks are in fine condition for wintering. I had two hundred and twenty-five dollars (\$225) worth of surplus honey this season; but not a pound did I get from my swarms.

This country is well adapted to white clover and buckwheat. These two crops are our main dependance. I have proposed to furnish the seed for any one that will sow ten acres and upwards of buckwheat, over and above their average crop for the last three years—provided it were sown within one half mile of my apiary; and I am satisfied that I will get pay for the seed, if it be a good season and fine weather when it is in bloom.

Some time after I took the surplus honey from off the hives, I found one box partly filled and unsealed, that contained honey not much unlike buckwheat for color, but of a bitter taste. Now which hive it was taken from, and whether the rest of boxes of that hive contained the same kind of honey or not, I am unable to say; but we found no bitter honey before nor since. This bitter taste resembles that of black cherry bark. Might this honey have been gathered from the black cherry blossoms? If so, why was there no more like it? There are not exceeding twenty cherry trees in the range of our bees' flight.

Another observation I have made. I found at two different times, a comb in the honey-boxes that contained three lengths of cells filled with honey. The middle and one outside length contained clover honey; and the other outside contained buckwheat honey. *This is surely a very uncommon occurrence; at least I never heard of the like before.*

I have this fall (1868) procured three beautiful Italian queens, and got them safely introduced, as follows: two from W. J. Davis, of Youngsville, Pa. On receipt of these two queens, I drove out the natives; caught and secured their queens; caged my Italian queens, placed them between the central combs and returned the workers to their respective hives. I let the Italian queens remain caged ninety hours, and then liberated them. My third queen I received from the National Beehive Company, at St. Charles, Ills., in one of their recently improved study hives, which no new beginner should be without—it is a completely finished hive, got up by a workman. But the bees, both queens and workers, from both parties, are what suits my eye. They are fine specimens. My third queen

remained caged just one week. On a recent examination my queens are all right, except that they have not laid any eggs. Allowing me to judge from the pages of our valuable BEE JOURNAL, I have got as pure Italians as are in the United States, though I cannot give an opinion as to their superiority, until I have a trial; but if their qualities are as superior to the natives as their looks and appearance, I shall be satisfied.

I use the double-cased Langstroth hive mostly—some one story with boxes; and some two-stories of frames. I get much the largest amount of surplus honey in the frames. See plate VII, figure 20, "Langstroth on the Hive and Honey Bee." I prefer this style to any other for wintering bees on their summer stands. My hives are all planed and painted. I get my boards planed at the planing mill, run my saws by horse power, &c., and do all the cutting, ripping, and rabbeting with circular saws.

M. WILSON.

MEREDITH, PA.

[For the American Bee Journal.]

**Rye and Oat Meal.**

MR. EDITOR—I see that some of your correspondents do not know how to start bees to work on rye or oat meal in the spring. I have had the same difficulty until last spring. After the meal is set out, and while bees are flying freely, sprinkle a few drops of *Essence of Anise* near the meal, and it will not be over five minutes before they will be at work on it lively. In hunting wild bees the essence is used to good advantage, for its scent will attract them. This I have also tried.

**ALL WORKER COMB.**

In the November number of the BEE JOURNAL for 1868, under the head "To obtain all worker comb," it is recommended to use guide combs in the space left just wide enough for worker comb only. That is not good in practice with me, as I have found that bees will raise drone brood by building the cells short on one side of the comb, and long enough to accommodate drone brood on the other. And when they could not put it in so, they built short pieces crosswise; and this not in one instance only, but in many.

C. HODGKINS.

MARLBORO', N. H.

Any one who goes through the world with his eyes open, is sure to find out something that even professed naturalists did not know before.  
—R. Holland.

It is rare to find men doubting facts, and still rarer to find them doubting whether the facts be correctly coördinated.—G. H. Lewes.

Be not too hasty to erect general theories from a few peculiar observations, appearances, or experiments.—Dr. Watts.

[For the American Bee Journal.]

**To Get Bees Out of Honey Boxes.**

I have never had much difficulty in getting boxes filled with nice honey; but I have had great difficulty in getting the bees out of the boxes after their removal from the hives. I have taken off boxes early in the morning, at mid-day, and late in the afternoon; have set them near the hive, and away from the hive, covered and uncovered, with smoke and without smoke; in short, have tried all sorts of ways. Still, many bees, after leaving a box, would return for a second load of honey and bring with them a swarm of hungry robbers; so that it was impossible to leave removed boxes until the last bee had been driven or coaxed out, and every hole covered. This took too much time, and I sought a better plan. Why not set the boxes on an empty hive, in some remote part of the apiary? That worked very well for a little while, but the robbers soon saw through this arrangement. Then I must have some kind of door or outlet to the hive, through which the bees could pass out, but not return. That was soon devised. A piece of tin was placed over the entrance, with four holes cut in the lower edge, about the size of a bee, and each hole covered, on the outside, with a small isinglass door, hung on a bit of fine wire, so as to work with the utmost freedom and with the least possible friction. All the light admitted into the hive must pass through these little isinglass doors, and thither the bees within flocked. The slightest push against one of these little doors was sufficient to open it, the bee passed out, and the door shut behind him. Hundreds of bees followed him with the same result. This was most satisfactory. But wait, here comes a bee back for a second load. Now for the test. Can he enter? You may be sure he will try. He does try every door—but fails. Bees are coming out of one door while he is trying to enter another. Presently one opens the door he is at, and in goes our little thief. By this time half a dozen have returned, and in ten minutes more the experiment has proved a failure; for they have in that time learned to push the doors to one side, and without difficulty. This might have been remedied by putting a pin at the sides of the doors, to prevent their moving sideways. But this plan was abandoned for something else that occurred to me just then, which I put in practical operation with entire success. Not a bee got back into the hive after that. I could leave a hive with a dozen boxes (resting on slats put across the frames,) go to dinner or down town, or leave it all day, and be certain all the time that not a bee could enter it from the outside; and every bee within could leave at any moment with perfect freedom. The plan adopted was simply that which is used in a certain kind of rat-trap in common use, and the application was made in this way. Through a cork bore a hole large enough for a bee to pass through: cut ten or a dozen pieces of fine wire, say each an inch and a half long, press one end of these wires into the cork around the hole, and so near

together that a bee cannot pass between them. Let the outer ends of the wires converge together, leaving an opening at the ends just large enough for a bee to pass out through it. Put the cork to the entrance of the hive, with the wires standing outward, and slanting up a little from the alighting board so that the bees from the outside can pass under it, while trying to get in. Close the entrance all round the cork, so that all the light that enters the hive must pass through the hole in the cork. This will bring every bee within to this hole, for a passage out. I will guarantee it to work perfectly.

R. BICKFORD.

SENECA FALLS, N. Y., Oct. 1868.

[For the American Bee Journal.]

**My Mode of Straining Honey and Wax.**

Last autumn I took up fifty old box hives, from five to ten years old. As the combs were mostly very thick and tough, I did not consider them worth saving for future use, and concluded to strain honey and wax from them. This is by no means an easy task. The honey-rendering machine would not work, as the honey was too thick, even after warming it up. If the combs are melted, the honey obtained has always some taste of bee-bread, and is disliked by many. I therefore concluded to make a new experiment. The hives with the honey were kept in a warm room for twenty-four hours, the combs then cut out, and those containing honey selected from the empty ones. They were next put under a cider press, and the honey not granulated was obtained free from the taste of bee-bread, though somewhat mixed with particles of wax; but these could easily be removed by straining through a course towel, after being warmed up some.

Very old brood combs are considered by most bee-keepers as perfectly worthless, even for obtaining wax. This is by no means the case. I prepared a bag from a strong coffee sack—using the inner finer one, holding about a bushel. Into this I poured the melted combs, and placed it under the cider press. On turning and shifting the bag several times, nearly every particle of wax can be pressed out. This is to be collected in a washtub, and after cooling somewhat, taken out in balls. After finishing the straining, the crude wax obtained is to be again melted with some water in an iron kettle, and then poured into forms to cool.

For melting the combs, I use a couple of iron pots holding about ten quarts, adding about two quarts of water to each kettleful; stirring it well during the melting, and then pouring it hot into the press-bag, and pressing only a bagful at a time. With the assistance of one man, I pressed out 163 pounds in a day and a quarter; but the remelting required nearly two days more, for one person—not having pots enough to melt more than 25 pounds at a time.

A. GRIMM.

JEFFERSON, WIS.

[For the American Bee Journal.]

**Honey Dews.**

While working under a young white oak tree one day last summer, I heard an unusual humming above, as if produced by a swarm of bees.

Looking upward, I found that the noise was occasioned by bees, and that the leaves were coated with a sweet varnish, which I immediately concluded to be honey dew. Having read Quinby's theory as to these dews being the exudation from a species of plant louse, I climbed the tree, to see if I could find any evidence in favor of his conclusions.

The under leaves were all covered with the dew, but had no sign of insects; but when I reached the top I found no dew, but on the under side of the leaves were a number of green and white insects, varying in size from that of a musquito to so small as to be scarcely visible. I further noticed that where the leaves were very close together, there was but little if any dew; but where they were fully exposed to the sun, the species appeared to make no difference, all being covered alike.

C. E. THORNE.

SELMA, OHIO.

[For the American Bee Journal.]

**Bees.**

As it is sometime since we wrote anything in the interest of beekeepers, for the BEE JOURNAL, we hope you will, if compatible with their interest, give publicity to the following items about bees:

The winter so far with us, has been one of moderate severity upon bees; the weather being of such a character as to prevent them from leaving the hives to discharge their feces, while it was warm and temperate enough to allow them to change their position among the combs. Nine-tenths of the bees in this locality (excepting Italians) are ill provided with honey, for the winter, the past summer having been the most unpropitious for honey we have experienced for years. The continued cloudy and rainy weather during the fruit blossoms prevented the bees from getting a supply of honey at a time when it was so necessary to the production of brood, and so completely disconcerted their arrangements for swarming, that they scarcely recovered from it the whole summer. The consequence is that only the very strongest of black colonies, and such as were fed in the fall, will survive the winter. Our stock being mostly Italian, are better provided for, and we expect to take the most of them through.

We have hitherto had considerable difficulty in getting our stock pure, as many of the queens we purchased from vendors to breed from, were tainted with black blood. True the progeny of some of them were characterised by three yellow bands, but the third band was so imperfect, or indistinct, as scarcely to be seen; while the appearance of the abdomen from those bands to its

point, differed very little from that of the black bee.

We received a queen bee last summer from Mr. A. Grey, of Reily, Butler Co., Ohio, which we believe would have been a prize, had we been so fortunate as to save her. But we lost her in introducing her in the second hive. We were lucky enough, however, to succeed in raising three queens from her, two of which, we believe mated with Italian drones. At least we hope so.

But of all the queens in our possession, the one we esteem most highly is one we received from Mr. Adam Grimm, of Jefferson, Wis., which was selected by him for us, in consideration of our paying him one dollar in addition to the published price, for the extra selection. This queen produces the brightest and prettiest progeny we ever saw, and we would not take one hundred dollars and do without her. I desire to return my thanks to Mr. Grimm for so valuable and handsome a queen, and hope that he will be so kind as to favor me, next summer, with another of the same sort.

As long articles are tedious to both publisher and readers, I will close the present remarks with the promise to give the BEE JOURNAL and its readers, hereafter, a synopsis of my experience in the art of feeding and wintering bees.

JOHN L. MCLEAN.

RICHMOND, OHIO.

[For the American Bee Journal.]

**Straw Movable Comb Hives.**

Referring to the notice of the straw movable comb hive in the August number of the BEE JOURNAL, allow me to say that I would have given detailed directions for making, had I not feared that, without a model, such directions would be of little service. Even with a hive before him, a new beginner, not accustomed to work in straw, would probably find difficulty in making one. Will not Mr. Van Slyke, who is acquainted with the hive and its construction, give some account of its adaptation?

It is the perfect Langstroth hive, only substituting rye straw as the material in place of wood. If bee-keepers desire to make a trial of it, I will deliver a working model at the Express office here, directed to any address, on receipt of five dollars; the hive to be of full size, containing nine frames, and to be accompanied with full instructions. By clubbing and ordering a hive, the cost to each member will not be much. If a hive, with frames of special dimensions be desired, the length and depth of frame should be stated when ordering.

What Mr. Davis desires from me he will find in the Patent Office Report for 1865; the claim in vol. 1, and the diagram in vol. 2, No. 47, 109.

W. HENCHEN.

BLOOMINGTON FERRY, MINN.

Healthy bees preserve their hives free from filth, and are ready always to defend them against every enemy that approaches.